What is claimed is:

1. A Silicon Carbide based Silicon structure comprising:

a Silicon Carbide substrate;

a bonding layer overlying said Silicon Carbide substrate;

and

a single crystal Silicon semiconductor material having a top surface; said single crystal Silicon semiconductor material overlaying said bonding layer; said single crystal Silicon semiconductor material bonded to said Silicon Carbide substrate via said bonding layer.

2. The structure of claim 1, wherein said Silicon Carbide substrate is of a conductivity type selected from the group consisting of: {a first conductivity type, and a second conductivity type}, said Silicon Carbide substrate having a first dopant concentration; said single crystal Silicon semiconductor material being of a conductivity type selected from the group consisting of: {said first conductivity type, and said second conductivity type}, said single crystal Silicon semiconductor material having a second dopant concentration.

3. The structure of claim 2, wherein said first dopant concentration of said Silicon Carbide substrate is equal or greater than said second dopant concentration of said single crystal Silicon semiconductor material.

4. The structure of claim 2, wherein said first dopant concentration of said Silicon Carbide substrate is lower than said second dopant concentration of said single crystal Silicon semiconductor material.

5. The structure of claim 2, wherein said first conductivity of said Silicon Carbide is of P type.

6. The structure of claim 2, wherein said first conductivity of said Silicon Carbide is of N type.

7. The structure of claim 2, wherein said second conductivity type of said single crystal Silicon semiconductor material is of P type.

8. The structure of claim 2, wherein said second conductivity type of said single crystal Silicon semiconductor material is of N type.

9. The structure of claim 1; wherein said Silicon Carbide substrate further includes a plurality of N Silicon Carbide layers; wherein said first Silicon Carbide layer includes a bottom surface of said Silicon Carbide substrate; wherein said last N-th layer includes a top surface of said Silicon Carbide substrate; each said subsequent "k"-th layer overlying said preceding "k-1"-th layer; each said "k"-th Silicon Carbide layer having a "k"-th conductivity type selected from the group consisting of: {said first conductivity type; and said second conductivity type}; each said "k"-th Silicon Carbide layer having a "k"-th

dopant concentration; each said subsequent "k"-th Silicon Carbide layer being grown on said preceding "k-1"-th Silicon Carbide layer; "k" is an integer greater than 1, "k" is an integer less or equal to N, N is an integer.

10. The structure of claim 9, wherein at least one said "k"-th Silicon Carbide layer further comprises:

an epitaxially grown by a Chemical Vapor Deposition (CVD) process Silicon Carbide layer, or an epitaxially grown by a molecular beam epitaxy (MBE) process Silicon Carbide layer.

11. The structure of claim 1; wherein said single crystal Silicon semiconductor material further includes a plurality of M single crystal Silicon semiconductor material layers; wherein said first single crystal Silicon semiconductor material layer includes a bottom surface of said single crystal Silicon semiconductor material; wherein said last M-th layer includes a top surface of said single crystal Silicon semiconductor material; each said subsequent "i"-th layer overlying said preceding "i-1"-th layer; each said "i"-th single crystal Silicon semiconductor material layer having an "i"-th conductivity type comprising said first conductivity type, or said second conductivity type; each said "i"-th single crystal Silicon semiconductor material layer having an "i"-th dopant concentration; each said subsequent "i"-th single crystal Silicon semiconductor material layer being grown on said preceding "i-1"-th single crystal Silicon semiconductor material layer; "i" is an integer greater than 1, "i" is an integer less or equal to M, M is an integer.

12. The structure of claim 11, wherein at least one said "i"-th single crystal Silicon semiconductor material layer further comprises:

an epitaxially grown by a Chemical Vapor Deposition (CVD) process single crystal Silicon semiconductor material layer, or an epitaxially grown by a molecular beam epitaxy (MBE) process single crystal Silicon semiconductor material layer.

13. The structure of claim 1, wherein said bonding layer further comprises:

a Silicon dioxide layer.

14. The structure of claim 1, wherein said bonding layer further comprises:

a Silicon layer.

15. The structure of claim 1, wherein said bonding layer further comprises:

a carbon layer.

16. The structure of claim 1, wherein said bonding layer further comprises:

a Silicon germanium (SiGe) layer.

17. The structure of claim 1, wherein said bonding layer further comprises:

a metal silicided layer selected from the group consisting of:

a tungsten silicide layer; a titanium silicide layer; and a cobalt silicide layer.

18. The structure of claim 1 further including:

at least one separation plug formed in said Silicon semiconductor material; said separation plug extending from said top surface of said Silicon semiconductor material into said Silicon Carbide substrate at a separation plug depth level, wherein said separation plug is configured to block the coupling between at least two adjacent active/passive structures, wherein each said active/passive structure is formed in said Silicon semiconductor material, said first active/passive structure extending from said top surface of said Silicon semiconductor material into said Silicon semiconductor material at a first active/passive structure depth level, said second active/passive structure extending from said top surface of said Silicon semiconductor material into said Silicon semiconductor material at a second active/passive structure depth level.

19. The structure of claim 18, wherein said separation plug further includes:

a trench filled with a material selected from the group consisting of:

an oxide material, polySilicon material, a metal material, a silicided material, a tungsten silicide material, a titanium silicide material, a cobalt silicide material, and a platinum silicide material.

20. A Silicon Carbide based Silicon structure comprising:

a Silicon Carbide substrate;

and

a single crystal Silicon semiconductor material having a top surface; said single crystal Silicon semiconductor material being grown on said Silicon Carbide substrate.

21. The structure of claim 20, wherein said Silicon Carbide substrate is of a conductivity type selected from the group consisting of: {a first conductivity type, and a second conductivity type}, said Silicon Carbide substrate having a first dopant concentration; said single crystal Silicon semiconductor material being of a conductivity type selected from the group consisting of: {said first conductivity type, and said second conductivity type}, said single crystal Silicon semiconductor material having a second dopant concentration.

22. The structure of claim 21, wherein said first dopant concentration of said Silicon Carbide substrate is equal or greater than said second dopant concentration of said single crystal Silicon semiconductor material.

23. The structure of claim 21, wherein said first dopant concentration of said Silicon Carbide substrate is lower than said second dopant concentration of said single crystal Silicon semiconductor material.

24. The structure of claim 21, wherein said first conductivity of said Silicon Carbide is of P type.

25. The structure of claim 21, wherein said first conductivity of said Silicon Carbide is of N type.

26. The structure of claim 21, wherein said second conductivity type of said single crystal Silicon semiconductor material is of P type.

27. The structure of claim 21, wherein said second conductivity type of said single crystal Silicon semiconductor material is of N type.

28. The structure of claim 20; wherein said Silicon Carbide substrate further includes a plurality of N Silicon Carbide layers; wherein said first Silicon Carbide layer includes a bottom surface of said Silicon Carbide substrate; wherein said last N-th layer includes a top surface of said Silicon Carbide substrate; each said subsequent "k"-th layer overlying said preceding "k-1"-th layer; each said "k"-th Silicon Carbide layer having a "k"-th conductivity type comprising said first conductivity type, or said second conductivity type; each said "k"-th Silicon Carbide layer having a "k"-th dopant concentration; each said subsequent "k"-th Silicon Carbide layer being grown on said preceding "k-1"-th Silicon Carbide layer; "k" is an integer greater than 1, "k" is an integer less or equal to N, N is an integer.

29. The structure of claim 28, wherein at least one said "k"-th Silicon Carbide layer further comprises:

an epitaxially grown by a Chemical Vapor Deposition (CVD) process Silicon Carbide layer, or an epitaxially grown by a molecular beam epitaxy (MBE) process Silicon Carbide layer.

30. The structure of claim 20; wherein said single crystal Silicon semiconductor material further includes a plurality of M single crystal Silicon semiconductor material layers; wherein said first single crystal Silicon semiconductor material layer includes a bottom surface of said single crystal Silicon semiconductor material; wherein said last M-th layer includes a top surface of said single crystal Silicon semiconductor material; each said subsequent "i"-th layer overlying said preceding "i-1"-th layer; each said "i"-th single crystal Silicon semiconductor material layer having an "i"-th conductivity type comprising said first conductivity type, or said second conductivity type; each said "i"-th single crystal Silicon semiconductor material layer having an "i"-th dopant concentration; each said subsequent "i"-th single crystal Silicon semiconductor material layer being grown on said preceding "i-1"-th single crystal Silicon semiconductor material layer; "i" is an integer greater than 1, "i" is an integer less or equal to M, M is an integer.

31. The structure of claim 30, wherein at least one said "i"-th single crystal Silicon semiconductor material layer further comprises:

an epitaxially grown by a Chemical Vapor Deposition (CVD) process single crystal Silicon semiconductor material layer, or an epitaxially grown by a

molecular beam epitaxy (MBE) process single crystal Silicon semiconductor material layer.

32. The structure of claim 20 further including:

at least one separation plug formed in said single crystal Silicon semiconductor material; said separation plug extending from said top surface of said single crystal Silicon semiconductor material into said Silicon Carbide substrate at a separation plug depth level, wherein said separation plug is configured to block the coupling between at least two adjacent active/passive structures, wherein each said active/passive structure is formed in said single crystal Silicon semiconductor material, said first active/passive structure extending from said top surface of said single crystal Silicon semiconductor material into said single crystal Silicon semiconductor material at a first active/passive structure depth level, said second active/passive structure extending from said top surface of said single crystal Silicon semiconductor material into said single crystal Silicon semiconductor material at a second active/passive structure depth level.

33. The structure of claim 32, wherein said separation plug further includes:

a trench filled with a material selected from the group consisting of:

an oxide material, a polySilicon material, a metal material, a silicided material, a tungsten silicide material, a titanium silicide material, a cobalt silicide material, and a platinum silicide material.

34. A Silicon Carbide based Silicon structure comprising:

a Silicon Carbide substrate;

a double bonding layer overlying said Silicon Carbide substrate;

and

a single crystal Silicon semiconductor material having a top surface; said single crystal Silicon semiconductor material overlaying said double bonding layer; said single crystal Silicon semiconductor material bonded to said Silicon Carbide substrate via said double bonding layer.

35. The structure of claim 34, wherein said Silicon Carbide substrate is of a conductivity type selected from the group consisting of: {a first conductivity type, and a second conductivity type}, said Silicon Carbide substrate having a first dopant concentration; said single crystal Silicon semiconductor material being of a conductivity type selected from the group consisting of: {said first conductivity type, and said second conductivity type}, said single crystal Silicon semiconductor material having a second dopant concentration.

36. The structure of claim 35, wherein said first dopant concentration of said Silicon Carbide substrate is equal or greater than said second dopant concentration of said single crystal Silicon semiconductor material.

37. The structure of claim 35, wherein said first dopant concentration of said Silicon Carbide substrate is lower than said second dopant concentration of said single crystal Silicon semiconductor material.

38. The structure of claim 35, wherein said first conductivity of said Silicon Carbide is of P type.

39. The structure of claim 35, wherein said first conductivity of said Silicon Carbide is of N type.

40. The structure of claim 35, wherein said second conductivity type of said single crystal Silicon semiconductor material is of P type.

41. The structure of claim 35, wherein said second conductivity type of said single crystal Silicon semiconductor material is of N type.

42. The structure of claim 34; wherein said Silicon Carbide substrate further includes a plurality of N Silicon Carbide layers; wherein said first Silicon Carbide layer includes a bottom surface of said Silicon Carbide substrate; wherein said last N-th layer includes a top surface of said Silicon Carbide substrate; each said subsequent "k"-th layer overlying said preceding "k-1"-th layer; each said "k"-th Silicon Carbide layer having a "k"-th conductivity type comprising said first conductivity type, or said second conductivity type; each said "k"-th Silicon Carbide layer having a "k"-th dopant concentration; each said subsequent "k"-th Silicon Carbide layer being grown on said preceding "k-1"-th Silicon Carbide layer; "k" is an integer greater than 1, "k" is an integer less or equal to N, N is an integer.

43. The structure of claim 42, wherein at least one said "k"-th Silicon Carbide layer further comprises:

an epitaxially grown by a Chemical Vapor Deposition (CVD) process Silicon Carbide layer, or an epitaxially grown by a molecular beam epitaxy (MBE) process Silicon Carbide layer.

44. The structure of claim 34; wherein said single crystal Silicon semiconductor material further includes a plurality of M single crystal Silicon semiconductor material layers; wherein said first single crystal Silicon semiconductor material layer includes a bottom surface of said single crystal Silicon semiconductor material; wherein said last M-th layer includes a top surface of said single crystal Silicon semiconductor material; each said subsequent "i"-th layer overlying said preceding "i-1"-th layer; each said "i"-th single crystal Silicon semiconductor material layer having an "i"-th conductivity type comprising said first conductivity type, or said second conductivity type; each said "i"-th single crystal Silicon semiconductor material layer having an "i"-th dopant concentration; each said subsequent "i"-th single crystal Silicon semiconductor material layer being grown on said preceding "i-1"-th single crystal Silicon semiconductor material layer; "i" is an integer greater than 1, "i" is an integer less or equal to M, M is an integer.

45. The structure of claim 44, wherein at least one said "i"-th single crystal Silicon semiconductor material layer further comprises:

an epitaxially grown by a Chemical Vapor Deposition (CVD) process single crystal Silicon semiconductor material layer, or an epitaxially grown by a molecular beam epitaxy (MBE) process single crystal Silicon semiconductor material layer.

46. The structure of claim 34, wherein said double bonding layer further comprises:

a Silicon dioxide layer;

and

a Silicon germanium (SiGe) layer;

wherein said Silicon Carbide substrate is attached to said Silicon dioxide layer; and wherein said single crystal Silicon semiconductor material is attached to said Silicon germanium (SiGe) layer.

47. The structure of claim 34, wherein said double bonding layer further comprises:

a carbon layer;

and

a Silicon germanium (SiGe) layer;

wherein said Silicon Carbide substrate is attached to said carbon layer; and wherein said single crystal Silicon semiconductor material is attached to said Silicon germanium (SiGe) layer.

48. The structure of claim 34, wherein said double bonding layer further comprises:

a metal silicided layer;

and

a Silicon germanium (SiGe) layer;

wherein said Silicon Carbide substrate is attached to said metal silicided layer;

and wherein said single crystal Silicon semiconductor material is attached to said Silicon germanium (SiGe) layer;

and wherein said metal silicided layer is selected from the group consisting of: a tungsten silicide layer; a titanium silicide layer; and a cobalt silicide layer.

49. The structure of claim 34 further including:

at least one separation plug formed in said single crystal Silicon semiconductor material; said separation plug extending from said top surface of said single crystal Silicon semiconductor material into said Silicon Carbide substrate at a separation plug depth level, wherein said separation plug is configured to block the coupling between at least two adjacent active/passive structures, wherein each said active/passive structure is formed in said single crystal Silicon semiconductor material, said first active/passive structure extending from said top surface of said single crystal Silicon semiconductor material into said single crystal Silicon semiconductor material at a first active/passive structure depth level, said second active/passive structure extending from said top surface of said single crystal Silicon semiconductor

material into said single crystal Silicon semiconductor material at a second active/passive structure depth level.

50. The structure of claim 49, wherein said separation plug further includes:

a trench filled with a material selected from the group consisting of:

an oxide material, polySilicon material, a metal material, a silicided material, a tungsten silicide material, a titanium silicide material, a cobalt silicide material, and a platinum silicide material.